

CLAIMS

1. A conductive coil contact member having at least one tapered end consisting of a plurality of turns of coil wire having a progressively smaller coil radius toward a free
5 end thereof, wherein:

said coil wire comprises a core wire and at least one highly electrically conductive layer formed over said core wire, a last turn of said coil wire at said free end having a smaller coil radius than would be possible by coiling said coil wire.

- 10 2. A conductive coil contact member according to claim 1, where a plurality of layers are formed over said core wire, said layers including at least one highly electrically conductive layer and at least one layer having a favorable mechanical property.

- 15 3. A conductive coil contact member according to claim 2, where said highly electrically conductive layer is made of a member selected from a group consisting of silver, silver alloy, copper and copper alloy.

4. A conductive coil contact member according to claim 2, where said layer
20 having a favorable mechanical property is essentially made of nickel.

5. A conductive coil contact member according to claim 2, where said layers further include an outer layer made of a member selected from gold, gold alloy, rhodium and rhodium alloy.

6. A conductive coil contact member according to claim 2, where said core wire is made of steel.

7. A conductive coil contact member according to claim 1, where said layer
5 continuously extends between adjacent turns of said coil wire.

8. A conductive coil contact member, comprising:

a first tapered coil end consisting of a plurality of turns of coil wire having a progressively smaller coil radius toward a free end thereof, an intermediate coil spring
10 portion including a coarsely wound section, and a second end consisting of a plurality of turns of coil wire wound radially inwardly substantially in a plane perpendicular to an axial line of said coil contact member so as to define a substantially flat end surface.

9. A contact probe head, comprising:

15 a holder consisting of at least one plate member and having at least one holder hole extending across a thickness of said plate member; and

a conductive coil contact member received in said holder hole, said coil contact member having a first tapered coil end consisting of a plurality of turns of coil wire having a progressively smaller coil radius toward a free end thereof, an intermediate
20 coil spring portion including a coarsely wound section, and a second coil end which also consists of a tapered coil end consisting of a plurality of turns of coil wire having a progressively smaller coil radius toward a free end thereof, said free end of said second tapered coil end being soldered to a terminal of an external base board.

25 10. A contact probe head, comprising:

a holder consisting of at least one plate member and having at least one holder hole extending across a thickness of said plate member; and

a conductive coil contact member received in said holder hole, said coil contact member having a first tapered coil end consisting of a plurality of turns of coil wire
5 having a progressively smaller coil radius toward a free end thereof, an intermediate coil spring portion including a coarsely wound section, and a second end consisting of a plurality of turns of coil wire wound radially inwardly substantially in a plane perpendicular to an axial line of said coil contact member so as to define a substantially flat end surface, said free end of said second flat end being soldered to a terminal of an
10 external base board.

11. A contact probe head, comprising:

a holder consisting of at least one plate member and having at least one holder hole extending across a thickness of said plate member;

15 a conductive coil contact member received in said holder hole; and
means for resiliently retaining said contact member in said holder hole.

12. A contact probe head according to claim 11, wherein said retaining means comprises a section of said conductive coil contact member having a slightly larger coil
20 outer diameter than a corresponding inner diameter of said holder hole.

13. A contact probe head according to claim 11, wherein said retaining means comprises a plurality of radial projections provided in a part of said holder hole, a circle defining by inscribing free ends of said radial projections being slightly smaller than a
25 corresponding coil outer diameter of said conductive coil contact member.

14. A contact probe head according to claim 13, wherein said radial projections are provided in an open end of said holder hole.

5 15. A contact probe head according to claim 11, wherein said retaining means comprises a plurality of radial projections extending over a substantial length of said holder hole on an inner circumferential surface of said holder hole, and a section of said conductive coil contact member having a slightly larger coil outer diameter than a circle defining by inscribing free ends of said radial projections.

10

0909523-072004